

# HUMAN RESPIRATORY SYSTEM

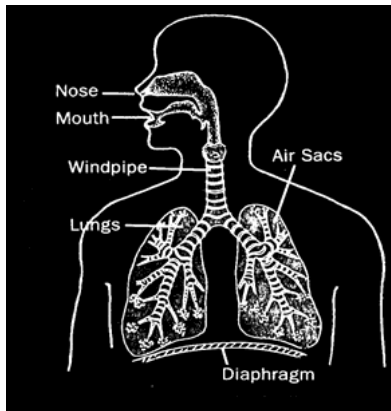
Arizona Department of Corrections  
Health Services Bureau

Inmate Wellness Program  
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The human respiratory system has 5 major parts: the nose, mouth, windpipe, lungs, and the diaphragm. These are main functions of the respiratory system:

- Breathing
- Supplying the blood with oxygen
- Removing carbon dioxide from the blood

To breathe, you need the help of your muscular system. A large muscle called the diaphragm controls your lungs. When the diaphragm moves down, air is pulled into the lungs. When the diaphragm moves up, air is forced out of the lungs. Air usually enters the body through the nose. In-



side the nose, tiny hairs clean the air by catching dirt and other particles. The clean air moves into a tube in your throat called the windpipe. The windpipe divides into two smaller tubes that lead into the lungs.

The tubes continue to divide in the lungs getting smaller and smaller until they end in tiny air sacs. These air sacs are like little balloons.

When you breathe in, oxygen from the air enters the air sacs. Each sac is surrounded by many capillaries (small blood vessels). The oxygen passes through the thin walls of the air sacs and enters the capillaries. Then the oxygen is picked up by red blood cells. The blood cells carry oxygen to every cell in the body. This is the process of supplying the body with oxygen.

In one breath, as the blood is being supplied with oxygen, another process is taking place. This process is called removing carbon dioxide from the blood. Carbon dioxide is a waste produced by all body cells. It is produced when body cells break down food and give off energy. As carbon dioxide is produced, it leaves the body cells and enters the

blood. The blood moves the carbon dioxide out to the capillaries and into the air sacs. Then the carbon dioxide leaves your body as you breathe out. In the lungs, carbon dioxide and oxygen are exchanged all the time.

Your body depends on this process to stay alive. Smoking tobacco decreases the lung's ability to properly supply the body with oxygen and remove carbon dioxide.

When you smoke tobacco you inhale many substances into your body. The three most dangerous substances are nicotine, tar, and carbon monoxide.

- Nicotine is an addictive drug that has harmful effects on the body. It can make the heart beat faster and raise blood pressure.
- About 30 percent of tobacco smoke is made up of tar. Tar is a dark, sticky mixture of many chemicals. Tar can damage cells in the respiratory system, which can lead to disease. Also, the chemicals in tar can lead to cancer.
- Burning tobacco also gives off carbon monoxide. This is the same toxic gas given off by cars. When carbon monoxide is inhaled, it causes less oxygen to be carried by the blood through the body and causes less carbon dioxide to be carried out of the body.

People who smoke tobacco or who breathe in tobacco smoke are more likely to get diseases such as Lung Cancer, Emphysema, Heart Disease and Stroke. The most important thing you can do to keep your lungs healthy, is don't smoke! And don't be around when others smoke!

Along with healthy lungs, your respiratory system needs strong muscles for it to function properly. Strong muscles are achieved through exercise and eating a healthy diet. If you have a heart condition or have not exercised regularly, you may want to submit an HNR to consult with a Health Care Provider before starting any exercise program.